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23 August 1982

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 159

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INDONESIA, CANADA SIGN NUCLEAR COOPERATION ACCORD

BK141003 Jakarata ANTARA in English 9035 GMT 14 Jul 82

[Text] Jakarta, July 14 (ANTARA) -- Indonesia and Canada have signed a cooperation agreement in the application of nuclear power for peaceful purposes. The Indonesian minister of mines and energy, Subroto, and the Canadian foreign minister, Mark MacGuigan, signed the cooperation agreement in Ottawa, Canada, Monday. Minister Suboroto is in Canada for a five-day visit to that country. In the first day of his current visit, Subroto met his Canadian counterpart, Marc Lalonde, to discuss the present development of energy trade in the world and bilateral cooperation in the development of coal and nuclear energy. Subroto also had the opportunity to hold talks with Canadian Trade Minister Ed Lumley on the participation of Canadian companies in infrastructural projects in Indonesia.

While in Canada, Subroto will visit Quebec, Toronto, Edmonton, Victoria and Vancouver, and will also meet several Canadian key officials dealing with the energy field, to discuss the development of oil, coal and hydropower energy in west Canada.

According to the spokesman of the Canadian Foreign Office, the newly signed agreement will pave the way for the supply of Canadian uranium and the transfer of Canadian nuclear technology to Indonesia.

CSO: 5100/2231

NUCLEAR-SHIP BAN CONTROVERSY RAGES; HAYDEN RETREATS

Victorian ALP Stand

Canberra THE AUSTRALIAN in English 21 Jun 82 p 2

[Article by Tim Pankhurst]

[Text] THE Victorian Labor Conference at the weekend adopted a hard anti-nuclear stance before the crucial national policy conference in Canberra next month.

Almost 500 delegates unanimously supported the Victorian Government's opposition to visits by nuclear-powered or armed vessels and the nuclear industry in general.

But the State secretary, Mr Bob Hogg, admitted: "Clearly, in hindsight, we could have handled it better."

He said more effective constant co-operation was needed between the State and federal parties.

This was a recognition that the Prime Minister, Mr Fraser, has exploited indecision within the ALP on a common nuclear policy and that the Victorian Government made mistakes in forcing the issue.

The Premier, Mr Cain, was forced to bow to Commonwealth powers last week and withdraw a directive to port authorities that they deny facilities to visiting nuclear waships.

A motion on the establishment of a nuclear-free zone by the Government had to be amended to add "within the limits of its own powers" as recognition of federal defence and foreign affairs reponsibilities under the Constitution.

Mr Cain seconded the amendment and reaffirmed his Government's commitment to a nuclear-free Victoria.

He said proposed legislation to ban nuclear industry and uranium mining within the State would be the cornerstone of the Victorian policy.

Foreign nuclear warships were not welcome but if the Federal Government legislated to allow their entry then it must accept full responsibility for the safety of Victorians.

Mr Hogg said the State had not tried to adopt a unilateral position on defence and foreign affairs.

The Government was talking about the safety of the community, particularly around Port Phillip Bay.

The policy was put up in good faith and was not part of a conspiracy theory or paybacks as a "paranoid press" had suggested, he said.

He said Japan had such a policy and nobody was suggesting that that was a threat to the Western alliance.

Australia, with the exception of Queensland, was not a banana republic and did not need visits by foreign navies to reassure it.

A left-wing MLC, Mrs Joan Coxsedge, said the Victorian Government was part of the largest mass movement the world had ever seen and must be in the vanguard of the anti-nuclear movement.

She said the American navy was not welcome and if it had enough sense it would stay away.

The State and federal Labor policies on uranium both call for a moratorium on its mining and treatment.

Secret Sydney Ban

Brisbane THE COURIER-MAIL in English 22 Jun 82 p 8

[Text]

CANBERRA. — A secret Federal Government report has ruled out Sydney Harbor as being suitable for visits by nuclear warships.

The 1970 report said this was because the naval berths and dockyards were surrounded by dense population.

In ruling out Sydney Harbor for short or long-term visits by nuclear-powered warships, the report said there was no suitable area to provide a berth or anchorage for use in an emergency.

"The port is of such commercial importance that it would have serious consequences for the economy if incapacitated by a nuclear accident," the report said.

There have been no visits to Sydney by nuclear-powered warships since the Labor Government was elected in 1976.

The report to the Federal Government said the minimum requirements for providing facilities for nuclear ships were a one-and-a-half mile direct control area around the ship.

Union Action

Melbourne THE AGE in English 22 Jun 82 p 5

[Article by Kate Legge]

[Text]

Victorian maritime and stevedoring unions will ban nuclear-fuelled vessels and ships carrying nuclear weapons from the Port of Melbourne.

Union officials said yesterday that the withdrawal of Australian waterside labor would not stop naval ships, but bans on port facilities and tugs could obstruct the passage of nuclear powered commercial vessels.

They see the threat of industrial action as an important contribution to increasing public support for the Victorian Government's anti-nuclear stand.

The Victorian branch of the announced that it would call a stopwork meeting the minute a nuclear ship entered Port Phillip Bay.

The union's secretary, Mr Geoff Waterside Workers' Federation Swayn said: "We are not subject to the same constitutional restrictions as the State Government, and our members can take a wide range of action".

Mr Swayn said the union's action would interfere with commerce and trade, and force the business world to lobby the Federal Government on the nuclear ships issue. He said maritime unions would recommend that all unions affiliated to the Trades Hall Council consider extending the bans.

"We congratulate John Cain for taking such a strong stand and we condemn the Port of Melbourne for its indecent tactics in this debate," Mr Swayn said. "The authorities endeavored to side with Mr Fraser, but they have not come out of it with any honor."

He said the union was concerned about the risk of accidents in an already-crowded port. "We care about the safety of workers and Victorians in general, and strongly object to nuclear arms," he said.

The Seamen's Union also strengthened its opposition to nuclear ships in protest against the Federal Government's stand. The union's assistant secretary, Mr Roger Wilson, said: "We welcome the statements made by the Victorian Government, and our members will refuse to assist the passage of any nuclear ships."

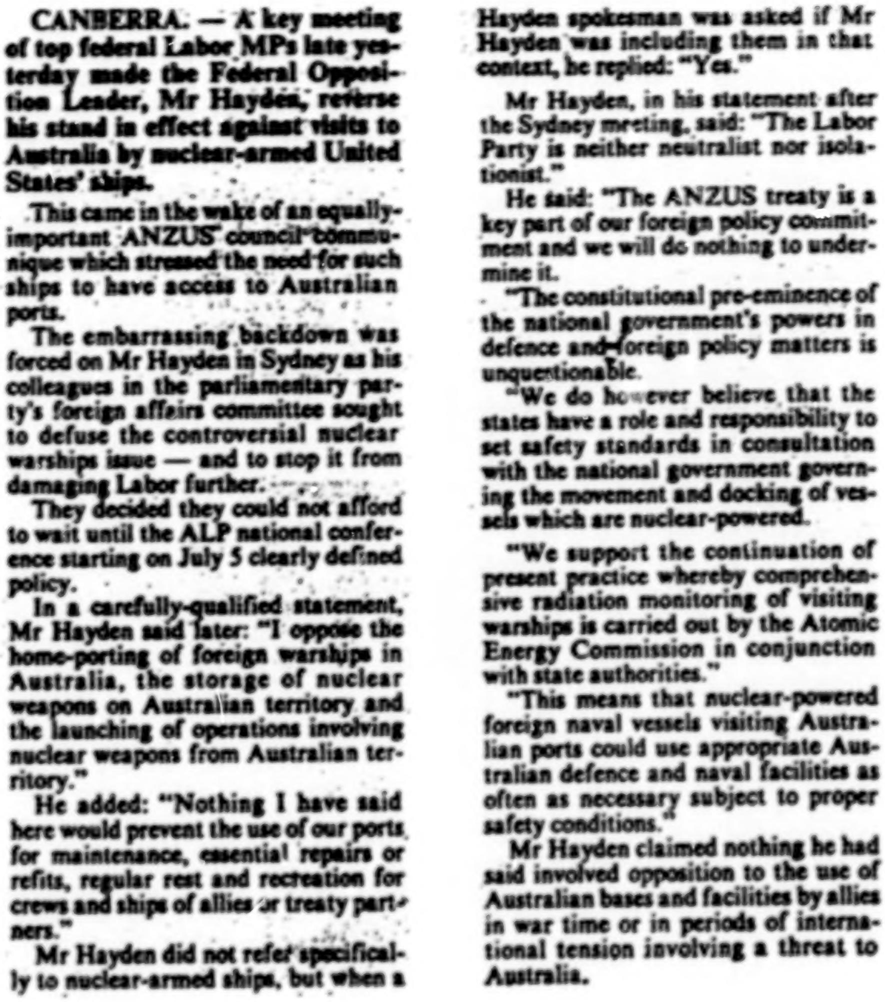
In another political move, the Victorian branch of the WWF yesterday voted to ban work on Israeli ships for 21 days in protest against the recent invasion of Lebanon.

Hayden Switch

Brisbane THE COURIER-MAIL in English 23 Jun 82 p 1

[Article by Wallace Brown]

[Excerpts]



CANBERRA. — A key meeting of top federal Labor MPs late yesterday made the Federal Opposition Leader, Mr Hayden, reverse his stand in effect against visits to Australia by nuclear-armed United States' ships.

This came in the wake of an equally-important ANZUS council communique which stressed the need for such ships to have access to Australian ports.

The embarrassing backdown was forced on Mr Hayden in Sydney as his colleagues in the parliamentary party's foreign affairs committee sought to defuse the controversial nuclear warships issue — and to stop it from damaging Labor further.

They decided they could not afford to wait until the ALP national conference starting on July 5 clearly defined policy.

In a carefully-qualified statement, Mr Hayden said later: "I oppose the home-porting of foreign warships in Australia, the storage of nuclear weapons on Australian territory and the launching of operations involving nuclear weapons from Australian territory."

He added: "Nothing I have said here would prevent the use of our ports for maintenance, essential repairs or refits, regular rest and recreation for crews and ships of allies or treaty partners."

Mr Hayden did not refer specifically to nuclear-armed ships, but when a Hayden spokesman was asked if Mr Hayden was including them in that context, he replied: "Yes."

Mr Hayden, in his statement after the Sydney meeting, said: "The Labor Party is neither neutralist nor isolationist."

He said: "The ANZUS treaty is a key part of our foreign policy commitment and we will do nothing to undermine it.

"The constitutional pre-eminence of the national government's powers in defence and foreign policy matters is unquestionable.

"We do however believe that the states have a role and responsibility to set safety standards in consultation with the national government governing the movement and docking of vessels which are nuclear-powered.

"We support the continuation of present practice whereby comprehensive radiation monitoring of visiting warships is carried out by the Atomic Energy Commission in conjunction with state authorities."

"This means that nuclear-powered foreign naval vessels visiting Australian ports could use appropriate Australian defence and naval facilities as often as necessary subject to proper safety conditions."

Mr Hayden claimed nothing he had said involved opposition to the use of Australian bases and facilities by allies in war time or in periods of international tension involving a threat to Australia.

CSO: 5100/7543

HAYDEN SOFTENS ANTI-NUCLEAR STAND BUT BACKS ARMS FREEZE

ALP Policy Maneuvering

Sydney THE SYDNEY MORNING HERALD in English 29 Jun 82 p 1

[Article by Paul Kelly]

[Text]

CANBERRA. — In a bid to remove another electoral hook for the Fraser Government the Labor leader, Mr Hayden, and his resources spokesman, Mr Keating, will move to reverse or soften ALP opposition to uranium mining and export.

An effort to change the current policy which is sure to provoke a major party conflict—now seems certain at the ALP national conference in Canberra next week.

Both Mr Hayden and Mr Keating want to remove the ALP pledge to repudiate existing uranium contracts, which, they believe, will undermine the financial credibility of any Labor Government.

The ALP leaders are now convinced that Mr Fraser wants an early election and are determined to draw the teeth of his electoral assets—capital gains tax, nuclear warships and now uranium.

But the ALP Left is certain to fight any softening of the opposition to uranium mining, arguing that it is an electoral plus and helps Labor get preferences from the Australian Democrats.

The move is a surprise. Several weeks ago the proposed resources platform was completed and circulated inside the ALP.

It contained no changes at all to the uranium policy.

In the interim, the make-up of the 99 delegates to the conference has been decided and Mr Hayden and Mr Keating believe there is now a reasonable chance of securing a modification in the policy.

The decision is likely to elevate uranium into the major issue at the conference.

The Left, particularly the NSW frontbencher Mr Tom Uren, see the party's opposition to uranium as both a political plus and policy necessity and is bound to resist its softening.

The momentum for change came from a meeting last week of a special committee set up by the ALP national executive to examine the economic and social aspects of uranium policy.

It was attended by Mr Hayden, his deputy, Mr Bowen, the national secretary, Mr McMullan, the NSW secretary, Mr Richardson, the Victorian secretary, Mr Hogg and Senator Gietzelt (NSW).

The meeting canvassed the political dangers in the present policy.

The national executive already has an opinion from the shadow Attorney-General, Senator Evans, that the repudiation clause in ALP policy could be implemented without making the Government liable for huge compensation payments from the uranium companies.

But Mr Hayden and Mr Keating remain worried that repudiation of contracts will create grave difficulties for a Labor Government.

It will prejudice mines already operating and investments based on huge overseas loans financed by major international banks.

The main mine involved is Ranger, being developed by Energy Resources of Australia — which already has an estimated $1,000 million in long-term contracts.

Call for Weapons Freeze

Sydney THE SYDNEY MORNING HERALD in English 29 Jun 82 p 1

[Article by Jenni Hewett]

[Text] CANBERRA.—The Leader of the Opposition, Mr Hayden, has called on both superpowers to have a mutual freeze on nuclear weapons — and strongly criticised Australian Government policy on arms control.

Mr Hayden's support for a mutual freeze on nuclear weaponry is in clear contrast to the position taken by the Minister for Foreign Affairs, Mr Street, last week during a speech to the United Nations on disarmament.

Mr Street joined the US in opposing a mutual freeze as confirming existing nuclear and conventional superiority.

Mr Hayden also emphasised that despite the backdown last week on nuclear armed ships entering Australian ports, the ALP is committed to strong and wide ranging opposition to nuclear weapons and their proliferation.

Mr Hayden also moved to identify publicly with the position of his deputy, Mr Bowen, on measures to assure Australian sovereignty over the North-West Cape base.

In a speech to a trade union seminar on disarmament yesterday, Mr Hayden:

Attacked the argument that the United States has a "window of vulnerability" in nuclear weaponry as "fictitious" and a "phony argument."

Condemned the recent comments of the Prime Minister, Mr Fraser, on the dangers of the growing strength of the disarmament demonstrations as a "totally unjustified attack on the integrity of millions of deeply committed people."

Accused the United States and the Soviet Union of acting in a totally schizophrenic way and said that any doctrines of limited nuclear war were specious.

Mr Hayden said that certain US facilities on Australian territory had been accepted as part of the ALP's commitment to the ANZUS Alliance.

But these were accepted only insofar as they were genuinely part of a stable system of nuclear deterrence.

CSO: 5100/7543

AUSTRALIA

AEC SUPPORTS NEW RADIOACTIVE WASTE DISPOSAL METHOD

Melbourne THE AGE in English 24 Jun 82 p 6

[Text] CANBERRA. — The Atomic Energy Commission has backed the viability of a radioactive waste disposal method developed by scientists at the Australian National University.

After almost three years of testing the disposal method, called SYNROC, the commission said it had significant advantages over disposal mediums favored by other countries.

The commission's backing for SYNROC is in an article in the latest edition of the Australian Foreign Affairs Record.

The method, which uses a synthetic rock, was developed by a team led by Professor Ted Ringwood, head of the Research School of Earth Sciences at the ANU.

Professor Ringwood and his team came under strong criticism in 1978 when their discovery was announced. The pro-nuclear lobby claimed the method was of no use because the problem had already been solved, while the anti-nuclear lobby claimed the problem could not be solved.

The commission's article said SYNROC held real promise in meeting society's requirements for the immobilisation and disposal of radioactive wastes in a safe way for very long periods.

"SYNROC is up to 500 times more effective than glass in retaining the wastes," the commission said.

"Already the commission has determined that SYNROC could maintain its integrity under irradiation for many thousands of years and that it could withstand continuous exposure to high temperature water without releasing significant quantities of the locked-in radioactive wastes."

The commission said it was now demonstrating that SYNROC could be economically manufactured on a large scale.

CSO: 5100/7543

U.S. REPORTED HOLDING UP SPARE PARTS FOR TARAPUR

Calcutta THE STAESMAN in English 24 Jul 82 pp 1, 7

[Text]

NEW DELHI, July 23.—It has been disclosed in Parliament that the USA had not only gone back on the 1963 agreement for the supply of nuclear fuel to the Tarapur Atomic Power Station, but that it had also been holding up the export of a number of spare parts required for the station.

The Rajya Sabha was told that orders for a number of spare parts for the station were pending with the suppliers in the USA for want of export licences. "The U.S. Government is yet to clear these applications, in spite of repeated reminders', the Minister of State for Science and Technology, Mr C. P. N. Singh, told the House.

As for fuel, the House was told that as per the 1963 co-operation agreement between India and the USA the latter was bound to supply the fuel needed for the station, during the term of the agreement, until 1993.

"Necessary applications have been regularly made by India, and our applications for supplies due in 1980, and 1982 are still pending with the USA", the Government said in a written reply to a question.

It also stated that "the future of the agreement has been under discussion between the two Governments".

The Tarapur station uses slightly enriched uranium as fuel, while the other nuclear power stations in the country use natural uranium, for which sufficient indigenous capacity is available. There have been inordinate delays in the supply of enriched uranium from the USA since 1975, and indeed the U.S. Government has indicated its inability to supply any further fuel.

As a result, the station is being operated at a reduced power level, so as to stretch the capacity of the available fuel. The existing stock of fuel is likely to last until 1984.

The enriched uranium sections of the nuclear fuel complex at Hyderabad have, meanwhile finished processing the last consignment of enriched uranium received from the USA and are currently processing and recycling the scrap generated during the normal operation.

The Rajya Sabha was told last week that "these sections are likely to close down by February 1983, in the event of non-receipt of further supplies of enriched uranium".

However, irrespective of further fuel supplies from the USA the Government of India will ensure the continued operation of the station, the Parliament was told more than once, during the current session.

CSO: 5100/7130

SPOKESMAN STATES RIGHT TO REPROCESS SPENT FUEL

BK010726 Delhi Domestic Service in English 0240 GMT 1 Aug 82

[Text] A government spokesman has said that India has the right to process spent fuel at Tarapur without any further consultations with the U.S. Government. There is no question of any joint determination in this regard. A member of the official delegation accompanying the prime minister on her U.S. tour explained that the original agreement provided for the transfer of the right to implement the safeguard provision to the International Atomic Energy Agency [IAEA]. After mutual consultations in 1971, India and the United States designated IAEA as the agency to administer the safeguard. India maintains that after this trilateral agreement, it can proceed with the reprocessing of the spent fuel. In other words, the joint determination which Washington is talking about has already been done. All that now remains is for India to notify IAEA so that they can start their monitoring operation.

All-India Radio special correspondent Manohar Chakru, covering the prime minister's visit to the United States, reports from New York that America has taken a different position on this issue. It says that despite the trilateral agreement it has still a say in the reprocessing. However, the disagreement will not come in the way of France supplying enriched uranium for the Tarapur plant. Our correspondent adds that there is no more storage capacity for stocking the spent fuel and this has lent urgency to reprocess it. India had notified the American Government in January last year that it will start reprocessing the fuel.

CSO: 5100/2231

BRIEFS

REACTOR OPERATIONAL IN 1983--India's first plutonium-based fast breeder test reactor at Kalpakkam, near Madras, is expected to commence operation next year. Minister of State for Science and Technology C.P.N. Singh told the Rajya Sabha that the reactor will have a normal thermal output of 42.5 megawatts and electrical power output of about 15 megawatts. The project cost is estimated at about 700 million rupees. [Text] [BK290957 Delhi Domestic Service in English 0830 GMT 29 Jul 82]

MADRAS HEAVY WATER SUPPLY--Adequate stock of heavy water is being built up indigenously to meet the initial requirement of the newly setup first unit of the Madras atomic power station. The initial requirement is 250 tons. The Lok Sabha was informed today that there will be no dependence on heavy water in the later stages. It was further stated that the proven resources of natural uranium are adequate for the current nuclear power program. [Text] [BK280843 Delhi Domestic Service in English 0730 GMT 28 Jul 82]

FUEL SUPPLY FOR TARAPUR--Prime Minister Mrs Indira Gandhi has said that the existing stock fuel in the Tarapur atomic power station is likely to last until 1984. Replying to a question in the Rajya Sabha today she said that the Tarapur station is now operating at lower levels to stretch the available fuel. The enriched uranium sections of the nuclear fuel complex at Hyderabad are likely to close down in the event of nonreceipt of further supplies. However, the government will insure continued operation of the Tarapur station, she added. [Text] [BK150811 Delhi Domestic Service in English 0730 GMT 15 Jul 82]

CSO: 5100/2231

BRIEFS

TOWARD NUCLEAR WEAPONS--The Australian Conservation Foundation--a privately-run organization--claims Indonesia has taken its first step towards the acquisition of nuclear weapons, materials and technology. The convener of the foundation's Energy Committee, Dr (Culter), said the Australian public should be alarmed by the signing of an agreement which opens the way for sale of Canadian reactors and nuclear technology to Indonesia. Dr (Culter) says Canadian reactors produce far more plutonium than the more common American light-water reactors and that plutonium from Canadian reactors can be diverted to bomb manufacture without being detected by international inspectors. [Text] [BK191340 Melbourne Overseas Service in English 0830 GMT 19 Jul 82]

CSO: 5100/2231

CEMA SESSION ADDRESSES ROBOTS, NUCLEAR POWER

PM151453 Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 82 signed to press 31 Jun 82 p 20

[Article by O. Rybakov and B. Vyazovov: "Important Event in the Fraternal Countries' Lives"]

[Text] The 36th CEMA session, which adopted a number of major decisions aimed at further intensifying socialist economic integration, was an important event in the life of the fraternal socialist countries.

Having examined the Soviet delegation's report on the results of the 36th CEMA session, the CPSU Central Committee Politburo and the USSR Council of Ministers noted that the session reaffirmed the fraternal countries' unanimous aspiration to strengthen the socialist community's cohesion and develop all-around mutually advantageous cooperation in all spheres of the economy, science and technology in the interests of enhancing the effectiveness of their national economies and improving the working people's well-being.

Life convincingly confirms again and again that now, as L.I. Brezhnev stressed in his report at the 26th CPSU Congress, it is impossible to imagine the confident development of a particular socialist country and its successful solution of problems such as the provision of energy resources and raw material and the introduction of sophisticated achievements of science and technology without ties with the other fraternal countries.

Following the Course of Scientific and Technical Progress

The successful solution of the tasks of intensifying the national economy and improving its efficiency set by recent congresses of the socialist community countries' communist and workers parties is closely linked with the need to accelerate scientific and technical progress. The program for the coordination of the CEMA countries' national economic plans for 1986-1990 adopted by the session attaches special significance to the fuller use of the potential of the international socialist division of labor with a view to accelerating scientific and technical progress and securing the balanced development of their national economies. It is pointed out that the coordination of plans will be supplemented by the coordination of economic and scientific and technical policy by interested CEMA countries.

An important practical contribution to the solution of these tasks is to be found in the general agreements signed at the session on cooperation in the development and extensive use of microprocessor technology in the national economy and the elaboration and organization of specialized and shared production of industrial robots. Under these agreements, cooperation and joint operations are envisaged in the sphere of research, planning and design development and, most important, the subsequent broad development of specialization and sharing in the production of automated complexes for manufacturing machinery, instruments and control systems equipped with sophisticated electronic devices.

A multilateral intergovernment agreement was also signed on questions of specializing and sharing in the production of articles for the microelectronic component base for computer hardware and material and technological equipment for microelectronics.

Speaking at the 36th CEMA session, Soviet delegation head N.A. Tikhonov, member of the CPSU Central Committee Politburo and chairman of the USSR Council of Ministers, noted the paramount importance in present-day conditions of concentrating forces in the main avenues of scientific and technical progress and doing the scientific and technical groundwork for the production of energy-, materials- and labor-saving machinery and means of automation and mechanization on the basis of the latest achievements in electronics. Cooperation in these sectors of leading technology, which are basically revolutionizing all social production and which ensure a sharp increase in the productivity of social labor, is becoming not only an economic task, but a major political task.

Prospects for Introducing Robots

The CEMA countries now attach great significance to micro-electronics technology. Microprocessor devices are described as the catalysts of scientific and technical progress. They work particularly successfully in so-called built-in automatic control systems -- machine tools with digital program control and manipulators (robots) used in various sectors of production.

As calculations by Soviet and foreign specialists show, in individual operations one robot replaces one to three workers, increases labor productivity by 20-40 percent, pays for itself in 1-3 years and results in an annual saving of R4,000-R9,000. The group use of robots increases labor productivity 100-200 percent, while the introduction of one robot yields, in all, a saving of R8,000-R12,000 per year. But it is not only a question of figures. The use of robots opens up fundamentally new possibilities in production -- it increases intensiveness and smooth running, improves the quality of output and reduces shoddy work.

Robots make it possible to develop fundamentally new technologies, replacing man in the production process. These technologies do not rely on a person's limited physical potential regarding speech, accuracy, load capacity and so forth. It is also important that robots can work in conditions which are absolutely unsuitable for people: first, where it is difficult to create the necessary environment for human life at all, and second, where the major expenditure is essential to ensure the necessary standard of comfort for human work (lighting, heating and so forth) in ordinary conditions.

Cooperation between the CEMA countries in this sphere largely relies on national programs. In the USSR, for instance, in effect a new sector of machine building is being created for the production of industrial robots. In the current 5-year plan, the program for robot production has entered the stage of wide introduction of robots into production. Some 5,000 robots are already in operation in the country, and by the end of 1985 there will be tens of thousands of them. The introduction of robots in the 11th 5-Year Plan will make it possible to save more than R300 million a year and to release some 100,000 workers. Here we have in mind first and foremost the areas of production where there is a manpower shortage and where the working conditions are harmful and dangerous to man.

The CEMA countries' cooperation in robot building under the agreements signed provides for the elaboration of a unified technical policy in this sphere and the implementation of extensive unification and standardization. The importance of this is clear from the predictions of specialists in the scientific and technical directions of the development of robot building. These predictions show that by 1985 a large proportion of robots will be equipped with highly developed senses (including technical vision) and microprocessor control, while by 1990 the main types of robots will be equipped with the components of an artificial brain.

it is expected that by 1990 the total robot pool in the CEMA countries will reach 200,000.

The implementation of the programs adopted and agreements signed in the sphere of microelectronics and robot building will strengthen the foundations for the retooling of the fraternal countries' national economies and the automation of production processes in industry and agriculture and many types of operations in the administrative sphere and will make it possible to reduce the use of manual labor and save energy, raw materials and other materials.

Other Spheres of Collaboration

The session examined questions of the development of cooperation in other spheres of great significance for scientific and technical progress and for increasing the national economic efficiency of the CEMA countries. In particular, it examined progress in fulfilling the agreement on multilateral international specifialization and production sharing and reciprocal deliveries of equipment for nuclear power stations, signed at the 33d CEMA session (1979) and covering the period 1981-1990.

Under this agreement, approximately 50 percent of basic equipment is to be produced in the USSR, the other 50 percent in other participating countries.

It can already be noted that the agreement's implementation has had a considerable effect on the formation and successful fulfillment of national programs for the development of nuclear power and has created the conditions for accelerated growth in this new, highly promising sector.

The present contribution of the nuclear power industry to the CEMA countries' economy is very substantial. In some countries about 20-25 percent of the total electricity generated comes from AES's. And as specialists note, the coefficient of utilization of capacities at these stations is significantly higher than at conventional power stations working on organic fuel, while the cost per kilowatt-hour of electricity is lower. This makes nuclear power a progressive direction in the future resolution of the fuel and energy problem.

Special significance is now attached to cooperation in resolving problems of food supplies for the population. The Food Program adopted in the USSR provides for extensive development of such cooperation. Speaking at the 36th CEMA session, N.A. Tikhonov particularly noted that while making the maximum use of our own potentials, we hope that the Food Program's implementation will at the same time be promoted by cooperation with other CEMA countries.

In elaborating and approving the avenues of mutual cooperation, the CEMA countries could not fail to draw attention to the increased complexity of the international situation as a result of the policy now being pursued by imperialist states--a policy of whipping up the arms race and interfering in other states' internal affairs. It was noted at the session that imperialist circles in the United States and a number of other NATO countries, with a view to exerting political pressure, have toughened their discrimination with respect to CEMA countries and embarked on the application of "sanctions" and the curtailment of trade and economic ties with them, in particular Poland and the Soviet Union. The illegal policy of economic blockade against fraternal Cuba is being stepped up. The Versailles conference showed that the main imperialist countries are setting a course of further complicating trade, credit and other economic relations with the CEMA countries.

The session's resolute condemnation of the actions of imperialist circles in the United States and its allies aimed at complicating trade and economic relations with the CEMA countries reflects the fraternal communist and workers parties' consistent line on strengthening peace and preserving detente and developing broad cooperation with all countries which acknowledge the principle of equality and mutual advantage. The session's decisions will promote the implementation of the course elaborated by the congresses of the CEMA countries' communist and workers parties for the further development of cooperation with developing countries, in particular countries oriented toward the socialist path of development.

The development of all-round cooperation between the CEMA countries and the deepening of socialist economic integration is a reliable path to the successful resolution of the socioeconomic tasks set by the congresses of those countries' fraternal parties.

CSO: 5100/2231

BRIEFS

FILIPOV AT KOZLODUY PLANT--On 27 July Comrade Grisha Filipov visited the most important power project of the current 5-year-plan period--the construction of the fifth block of the Kozloduoy nuclear electric power plant. At a meeting with construction workers, fitters and investors, Nikola Todoriev, minister of power supply, briefed Comrade Grisha Filipov on the construction timetable and the progress of construction. He stressed that construction work continues around the clock, with full mobilization of the work force and equipment. Comrade Grisha Filipov positively evaluated the results which have been achieved and gave some instructions on accelerating construction and fitting work and on commissioning and activating the fifth nuclear reactor on time. The meeting was attended by deputy ministers, responsible workers of central departments, okrug leaders and specialists working at the plant. [Text] [AU271545 Sofia Domestic Service in Bulgarian 1500 GMT 27 Jul 82]

CSO: 5100/2231

VICE PRESIDENT EXPLAINS NUCLEAR WEAPONS POLICY

No Weapons Development

PY152318 Sao Paulo FOLHA DE SAO PAULO in Portuguese 18 Jun 82 p 5

[Excerpt] Rio de Janeiro — The Brazilian Government's position of not developing nuclear weapons is "implicit" in the nuclear agreement signed with the FRG, "but to date we have never said anything explicitly on the subject," Vice President Aureliano Chaves stated yesterday. The vice president declined to say whether Brazil intended to produce nuclear weapons in the long term, stating: "One cannot anticipate the future."

Aureliano Chaves recalled that Brazil did not sign the Nuclear Nonproliferation Treaty (1968) and has not ratified the treaty banning nuclear weapons in Latin America (Tlaltelolco, 1967). Meanwhile, in the nuclear agreement with the FRG, Brazil commits itself to "using nuclear development for peaceful purposes" only.

"More important than any statement is peaceful behavior. We behave peacefully and we have a formal position in favor of peace and the peaceful resolution of differences between countries," the vice president added. Accompanied by Minister Maximiniano da Fonseca, the vice president was observing military exercises aboard the aircraft carrier Minas Gerais.

The vice president defended "making the armed forces adequate to the importance and responsibilities Brazil has in the world today." Chaves made the reservation, however, that "this does not mean I am proposing an arms race." For him, "The fundamental problem for any armed forces is to create technology to achieve a certain degree of autonomy in relation to foreign equipment."

Sao Paulo Nuclear Plants

PY160045 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 Jul 82 p 1

[Text] Sao Paulo will have four nuclear powerplants, Electrobras President Gen Costa Cavalcanti announced officially yesterday. Along with Peruibe 1 and 2, Sao Paulo will have two more of the eight called for in the Brazil-FRG nuclear agreement.

Two others are under construction in Rio de Janeiro (Angra 2 and 3) and the remaining two should also be located on the Rio-Sao Paulo axis, although the possibility exists that Ceara will be given one of the powerplants in order to take advantage of the Itataia uranium deposit, the largest in Brazil, with deposits of 137,500 tons.

CSO: 5100/2231

URANIUM RESERVES IN ITATAIA EXPECTED TO IMPROVE RANKING

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 4 Jul 82 p 47

[Report by special correspondent Milano Lopes]

[Text] Itataia--In less than 2 years, Brazil has become the fifth-ranking country in the world in uranium reserves, with 266,300 tons, being outranked only by the United States, Canada, Australia and South Africa. But its position in that ranking may improve even further this year on the basis of the results of new explorations being conducted in the Northeast, involving more than 24,000 square meters of drilling.

Of the 266,300 tons of uranium in the Brazilian reserve as of the end of last year--140,500 being measured and indicated, or reasonably certain, and 95,800 inferred or additional estimated--more than half is located in the uranium-bearing area of Itataia in the state of Ceara, in a small square of land of an old cattle ranch 200 kilometers from Fortalexa. The Itataia reserves amount to 137,500 tons, 83,000 being measured and 54,500 inferred.

Mountain of Uranium

Itataia is located in one of the driest areas in the state of Ceara and despite the fair winter this year, the impression one gets on arriving in the region, after traversing the well-maintained 46-kilometer-long dirt road, is a landscape of desolation and abandonment.

However, in direct contact with the Brazilian Nuclear Corporation (NUCLEBRAS) technicians and workers who are conducting more drilling and reparing the infrastructure for the installation of a pilot plant which will determine the appropriate process for the future large-scale production of uranium hexafluoride or yellow-cake, one gets another impression. And attention is drawn toward a mountain from the peak of which overhand reddish rocks that indicate a high level of radioactivity at the simple approach of the measuring equipment.

And the most impressive thing is that that whole mineral mass is restricted to a square of little more than 1.5 kilometers, representing the greatest concentration of uranium ore known in such a small area. In addition, since the uranium is in view, its extraction in the initial stage will be open-pit, that is, removing the mineral mass on the surface, substantially reducing the expense of mining.

In addition to Itataia, NUCLEBRAS' explorations have identified as a sort of extension of that area the deposit of Alcantil, 7 kilometers to the east, and of Serrotes Baixos, 37 kilometers to the west, with reserves of 7,000 and 8,000 tons of uranium, respectively. Those two new areas are being intensively worked over, and everything leads to the belief that there will be a substantial increase in the reserves of the uranium-bearing area of Itataia this year.

Since NUCLEBRAS began its work in Itataia 5 years ago, 288 perforations have been bored, totaling 65,202 meters of drilling to explore the depth limit of the mineralization. Seventy-one thousand samples were collected for laboratory analysis, with which 506,000 analytical assessments were made (analysis for uranium, phosphates and other important elements in the process of extracting the uranium) with a view to indicating the most appropriate treatment to be given to the ore.

In addition to the drilling work, NUCLEBRAS opened up three underground galleries in Itataia, totaling 1,269 meters for the purpose of cutting the body of the ore. The aim was to obtain more data on the form and geometry of that mineral body and to collect more representative material for beneficiation tests of the ore, that is, tests whose objective is to determine the easiest way to extract the uranium.

Pilot Plant

In order to obtain the parameters necessary for the construction of a mining-industrial complex with a production capacity of 3,000 tons per year of uranium concentrate, which should go into operation beginning in 1991, a pilot plant will be built in the area of the deposit. Work on it has begun with the construction of a dam that will accumulate 300,000 cubic meters [of water] which will be ready within 2 weeks.

In Itataia, the following activities will be carried out: mining and handling of the ore; physical concentration of the ore by flotation; chemical opening of the concentrate for the production of phosphoric acid; recovery of the ore for extraction with solvents; and concentration of the phosphoric acid produced. The pilot plant will produce 50 tons of yellow-cake, 6,300 tons of phosphoric acid and 26,000 tons of sulfuric acid annually and employ 180 persons; it is scheduled to go into operation in 1986.

After 2 years of operation and once the best extraction process has been determined, the subsequent stage will be the installation of the industrial plant which, in the three alternatives set up, will move 1.82, 3.64 or 5.46 million tons of ore; will produce 1,000, 2,000 or 3,000 tons of yellow-cake; 150,000, 300,000 or 450,000 tons of phosphoric acid, and will employ 809, 987 or 1,200 persons, respectively.

Selection of the appropriate alternative for the beginning of production will depend on some factors such as the market--part of the production will be for export--domestic consumption needs, and the availability of investment funds. The most serious problem in the region, the lack of water, will also be resolved for the industrial plant with the construction 30 kilometers from Itataia of the Serrote Dam with an accumulation of 30 million cubic meters of water.

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BRAZIL

CALS ANNOUNCES ESTABLISHMENT OF NUCLEAR FUSION CENTER

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Jul 82 p 25

[Text] Rio--Speaking at the War College (ESG), Mines and Energy Minister Cesar Cals announced the establishment of the National Plasma Physics and Nuclear Fusion Center in Itaguai which will group together in one single site eight groups of Brazilian scientists who are conducting research on plasma and fusion through the use of laser rays contained within magnetic fields.

With regard to the nuclear program, Cals said that the government has decided to order new nuclear power stations only when the fuel cycle technology has been defined. He explained that the German-Brazilian nuclear agreement envisages eight power stations but only four are designated on behalf of Germany. The remaining four will be ordered by international bids, and the only thing that is guaranteed is that KWU will be given priority. Since the four remaining plants are not committed by trade agreements, the matter remains to be resolved during the administration that succeeds President Figueiredo.

With regard to the uranium enrichment process, the minister of mines and energy explained that he went to Germany and wanted to find out in Siemens, which is developing that technology, if the ultracentrifuge is a process much superior to the one supplied to Brazil. He learned that, in fact, the ultracentrifuge is much better, with a consumption of 200 kilowatt hours per unit of separating time (UTS), while the jet-nozzle process consumes much more energy, about 3,300 to 3,500 kilowatt hours/UTS. However, Germany does not own the patents for that technology, which is shared with other partners. If the jet-nozzle is not the best process, it at least is the one available at the moment, the minister explained to the ESG cadets.

Cals also said that he confirmed that the Germans are making some progress in the uranium enrichment process, in the sense of reducing the high consumption of electric energy. He announced also that the Brazilian Petroleum Corporation (PETROBRAS) is establishing an office in Rotterdam (where the oil free market is located) for fast exchanges of information and to follow market trends. Brazil will try to sell domestic market surplus oil derivatives there.

Another subject taken up by the minister was the establishment of the trinational PETROLATIN, which will have the participation of Mexican Petroleum (PEMEX), Venezuelan Petroleum Corporation (PETROVEN), and PETROBRAS, for the exploration and marketing of oil. He revealed that it will be capitalized at $2.4 million and that the company is not being viewed favorably by the oil multinationals, which fear competition."

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FURTHER DETAILS ON CTA MILITARY RESEARCH REPORTED

Rio de Janeiro JORNAL DO BRASIL in Portuguese 10 Jul 82 p 12

[Article by Eneas Macedo]

[Text] Sao Paulo--The Aeronautics Technical Center (CTA) in Sao Jose dos Campos is developing nuclear technology unprecedented in this country aimed at construction of fast-breeder reactions and the use of laser rays in the fission of fuel elements. The objectives of the work are military and aim to obtain a sufficient quantity of plutonium before the end of the century to begin production of military nuclear devices.

The project, which is based on the use of uranium and thorium, is being developed by the Advanced Studies Institute (IEA), a department created in the CTA especially for this purpose. The work has the research support of the Energy and Nuclear Research Institute (IPEN) of Sao Paulo and the University of Campinas (UNICAMP), the strategic support of the National Nuclear Energy Commission (CNEN), and funds of the Bank of Brazil. Due to their essentially military nature, the research is disassociated from the Brazilian-German atomic program and is outside of Brazilian Nuclear Corporation (NUCLEBRAS) coordination.

Chance Beginning

Nuclear research in the CTA area began fortuitously in the last decade when the Aeronautics Center sought to develop a zirconium alloy for the construction of planes. Since that metal is associated with uranium to a very high degree, the technicians at the center began to experiment with that nuclear element but without military aims.

That concern arose in 1977 when the IEA was created, an advanced studies laboratory organized by Col Jose Albano do Amarante. Until the end of that decade, the work centered on determining integrated technologies that would make it possible to obtain in the shortest possible time the elements necessary for the manufacture of nuclear weapons, in this case, plutonium, the production of which will be very low in the future reactions of the Angra-II and III type.

A board of scientists comprised in its majority by military men opted for two types of equipment in the future: fast-breeder reactors and the enrichment of uranium by laser rays, two technologies that are still practically in the laboratory phase in the most advanced countries.

The pace of the whole project was slowed after the death of Colonel Amarante last year and was not resumed after the installation of the new head, Col Reginaldo Santos. The high-level team directing the work is comprised of 6 Ph.D scientists and 12 masters. One of those specialists described the present stage of the project as academic and said that construction of the prototypes has not even been thought about since the reactor engineering division has not been formed.

The fast-breeder reactors use natural uranium (heavy water) as a moderator to set off the apparatus which, in a second phase, begins to burn thorium-232. For military purposes, it presents the great advantage of producing 10 times more plutonium thatn Brazil will produce with German technology. The Brazilian reserves of thorium exceed 80,000 tons and the most advanced technology on the subject is in France, the Soviet Union and Great Britain. IEA experts estimate that that technology will not be mastered by Brazil until the end of the century.

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FURNAS DEBT TO SUPPLIERS REACHES 14 BILLION CRUZEIROS

Sao Paulo FOLHA DE SAO PAULO in Portuguese 20 Jun 82 p 38

[Text] Rio--Furnas Power Stations will suffer a large part of the loss due to the delay of Angra-I, despite the fact that the defect in the nuclear plant's steam generator was the exclusive responsibility of Westinghouse because of a design fault and that the purchase was made as a closed package deal. Whereas Westinghouse has obtained a profit of $118.5 million in the first quarter of the year, Furnas has already accrued a debt to the suppliers of about 14 million cruzeiros.

To win the competitive bid, the American company designed a preheating chamber in the steam generator, increasing the plant's yield by 3 percent. And it was precisely that chamber that caused the corrosion of the pipes in three other plants (Almaraz, Ringals and McGuirre) with idential designs as that of Angra-I. All of them will have to be modified.

The defect was detected in October of last year and it was only in May that Westinghouse held out promise of a solution, still to be tested in the American reactor. Despite the expectation that Angra-I will go into commercial operation by the end of the first quarter of next year, in fact it becomes quite difficult to establish timetables. The Brazilian plant will be modified only after the new design is tested and approved in the United States.

Commitments Broken

Initially scheduled to go into operation in 1977, Angra-I suffered all sorts of adversities, even the construction of the neighboring plant weakened the structures of the project, causing the settling of the turbine building. The delays began to succeed one another and the [cost of the] unit went from $33 million to $1.4 billion--for the time being.

With the new problem of the generator, the plan can only operate up to 30 percent of its 626-megawatt capacity because at this power the upper water intake of the generator is used, avoiding the preheating chamber area. At a higher power, it becomes necessary to use the lower opening of the equipment, which would cause vibration of the pipes and later corrosion, as occurred in the units in Europe and the United States.

Westinghouse has agreed to modify the generator and pay for the repairs. In the meantime, Furnas will bear the burden of the whole infrastructure to enable the repairs to be made, without considering the time that the idle plant is not generating revenue. In that connection, the unit is operating at 30 percent because a stoppage could affect the equipment similar to what happens when a car stays in a garage for a long time without being run. The stoppage of the plant would also mean a demobilization of the technical staff.

Of the total cost of $1.4 billion, approximately $280 million was spent on the civil engineering work and about $1 billion on equipment. According to Furnas' information, over and above the total for the plant, another 30 percent should be added for financing expenses. In the meantime, the new delay means an expenditure of $140 million to cover financing costs without considering the expenses of operation without producing energy.

Angra-I even had problems with the fuel. After it was purchased from the United States, the U.S. Congress vetoed the supplying of sensitive material. But Brazil has an agreement with URENCO (a consortium comprised of Germany, the Netherlands and Great Britain) initially signed for the plants in the agreement with Germany but which can also be used for recharging Angra-I.

Other Units

While the problems with Angra-I continue, the two subsequent units proceed with their work after a 5-year delay due to the problems with the foundations of the second power station. Angra-II concluded the heading slab in November and is beginning the superstructure of the reactor building, with the preassembly of the containment sphere; the electromechanical installation of the equipment is envisaged for the beginning of 1983.

In the meantime, Angra-III is in the excavation phase. Beginning of the civil engineering work is expected in the last quarter of this year. The competitive bidding phase has not yet ended. Norberto Odebrecht was in charge of the civil engineering work of this plant but when it passed to the responsibility of the Nuclear Power Station Construction Corporation (NUCON), a subsidiary of the Brazilian Nuclear Corporation (NUCLEBRAS), new bids were called for.

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BRAZIL

BRIEFS

FIRST NUCLEAR PLANT BY MID-1983--Rio de Janeiro, 12 Jul (TELAM)--Mines and Energy Minister Cesar Cals announced here today that the first Brazilian nuclear powerplant will be operating at "full capacity" before the middle of 1983. The minister revealed that a new system will be installed in October 1982 at the "Angra I" powerplant to replace heat-producing equipment that had technical problems. Therefore, the plant will be operating at full capacity 6 months later. The part which caused a 1-year delay in the operation of the plant, located 120 km south of Rio de Janeiro, will be supplied by the U.S. company Westinghouse. The minister said that as soon as the first problem was detected at the plant, Brazil adopted a cautious policy of carrying out operation tests at only 30-percent capacity, "something quite different to what happened in Spain and Sweden where serious problems occurred because plants were run at 90-percent capacity."

CSO: 5100/2231

PREPARATIONS UNDERWAY FOR PUTTING KOEBERG INTO OPERATION

Johannesburg THE STAR in English 17 Jul 82 p 5

[Article by Chris Erasmus: "Like It or Not, SA Is About To Enter the Nuclear Age"]

[Text]

Melkbosstrand residents near Cape Town heard the eerie wail of sirens as Koeberg's personnel and safety precautions were put through their paces during a simulated crisis.

The exercise, watched over and conducted by the Atomic Energy Corporation, marked the final stage of preparations before South Africa's first nuclear power station comes on line early next year.

According to Escom, Koeberg will save 100 million litres of fresh water and 16 000 tons of coal a day compared with 2 000 megawatt coal-fired stations using cooling towers. This means a saving of about 200 million tons of coal during its operating lifetime. A significant figure in anyone's book.

But it has been a long haul since the early days when the notion of a nuclear plant situated near Cape Town was first mooted in the early 1970s. The story of the plant's construction is a mixed one.

Building on the 3 000 ha Melkbosstrand site began in 1977. At the time Mr Chris Heunis, who was then Minister of Economic Affairs, estimated cost of the project would be R970 million and its projected date of completion was set for some time in 1985.

Within a few months of the first dunes being cleared of the Port Jackson willows that estimate had climbed, and some analysts were warning that the cost of building the nuclear plant might eventually top R2 000 million.

The sceptics who had predicted the effects on building costs of rising inflation were proved correct and by November last year the estimated cost of the nuclear power station was put at R2 300 million.

There have been other problems too.

As Capetonians began to realise that a nuclear power station was to become a reality in their own backyard, so too a vociferous anti-nuclear lobby emerged armed with frightening stories of the potential hazards of nuclear pollution.

Soon claims and counter-claims were flying freely between the concerned "anti-nuke" lobbyists and various experts within the Government and Escom.

The "anti-nuke" lobby, supported by Mr Jim Harding, a former adviser to the California Energy Commission, questioned claims made by Escom's chief nuclear engineer, Mr J R Colley, and others that Koeberg was the safest of its kind in the world, was designed along the most up-to-date lines and would be economical in comparison to similar-sized fossil-fuel burning power stations.

Emotive scenarios of mass death, destruction and lingering suffering were painted by those fearing sabotage of the nuclear plant or some natural disaster such as an earthquake exposing the volatile core of a reactor.

These and other less dramatic fears of contamination which might result from a leak of radioactive materials from the plant into the atmosphere have been repeatedly allayed by Escom and Government experts.

Escom claims to have spent eight years investigating all pros and cons of the project and millions of rands have been invested in survey and analysis operations as well as the extensive safety precautions which were tested for their efficiency this week.

But for some no amount of denial or assurances of intricate and well-tested safety measures will be sufficient.

In spite of the grim, if extremely unlikely, possibility of a man-made or natural disaster, construction went ahead and the existence of a soon-to-be operative nuclear power station has become a fact of life in the Peninsula.

Another major difficulty emerged when a deadlock between the United States Department of Energy (DOE) which had agreed to enrich South African uranium, and Escom developed in 1981, threatening to leave Koeberg without fuel for its two reactors.

Escom was refusing to supply DOE with the 300 000 kg of uranium ore because in terms of the US Nuclear Non-proliferation Act of 1978 export of enriched uranium to South Africa was banned.

The problem was overcome, however, when South Africa came up with an 18-month supply of enriched uranium hexafluoride from an unknown source. Dr Ampie Roux, chairman of the Uranium Enrichment Corporation, said in April last year that South Africa would eventually be able to produce the 50 tons of enriched uranium needed to fuel the plant's reactors annually.

But behind all the publicity and drama work at the Melkbosstrand site was progressing and slowly but surely construction was moving ahead under the direction of the four French companies, Framateg, Framatone, Spie-Batignolles and Alstrhom - Atlantique, who were contracted by Escom to build the station.

The first reactor was completed on schedule in 1981 and was "hot tested" in April this year.

Last week Escom confirmed that the first deliveries of the enriched uranium had arrived at the plant and that the number one reactor would soon be loaded.

The number two reactor will also be ready for testing and loading in the near future.

When the station is operating to its full capacity towards the end of next year, it will contribute 1842 megawatts to the national grid — about 10 percent of South Africa's entire power output.

Whether for or against, whether pro-nuclear, or anti-nuclear, South Africans must accept that with the firing of Koeberg's first reactor they will have entered the nuclear age.

And until a viable alternative to nuclear energy is developed South Africans can look forward to an era in which the energy of the atom will play an increasingly important part in their lives.

CSO: 5100/5691

CORRESPONDENT SCORES 'OVER-EMPHASIS ON NUKES'

Johannesburg THE CITIZEN in English 4 Aug 82 p 6

[Article by Aida Parker: "A Psy-war 'Bomb' To Blast Communism"]

[Text]

DOES South Africa possess nuclear capability? The latest contribution to that long-standing debate comes in a new Corgi publication, Two Minutes Over Baghdad, just arrived in Johannesburg.

According to this, a hush-hush, triple-state "nuclear axis" comprising Pretoria, Jerusalem and Taipeh has jointly succeeded in developing a devastating "neutron bullet", a 155-mm cannon shell fitted with a neutron warhead, and is now proceeding with a common effort to develop a Cruise missile with a 2 400 km range.

All this is exciting stuff, expecially to our overseas critics who froth at the mere thought of South Africa having a "bomb in the basement".

But it does raise an interesting point. Why this continual over-emphasis on nukes? Even if it had [illegible] Bomb, it is most unlikely South Africa would ever use it.

But what our friends in Taipeh and Jerusalem can offer is a "bomb" of an entirely different nature, one which (skilfully used) could ultimately have far greater fall-out.

That is mind control, the most powerful force in the world today, so well understood by the communists, so little understood by the West in general and South Africa in particular.

While in Taipeh recently, I was privileged to meet General Wang Sheng, director of the Political Warfare Department of Free China's Ministry of National Defence.

While perhaps not a household name in non-military circles, General Wang is certainly well known to defence departments throughout the West.

In these circles, he is hailed as a modern-day Confucius, perhaps the greatest expert in psychological warfare in the world today.

If he has any competition in this rarefied sphere, it is in the USSR and Red China, not in the West.

By any standards the urbane, intelligent, intellectual General Wang must be one of the most fascinating men alive. Had the Americans heeded his advice early on during the Vietnam War, much of Indonchina's later tragedy might well have been avoided.

For nearly 40 years now General Wang, who arrived in Taipeh with General Chiang Kai-Sheck after the communist take-over of mainland China, has been engaged in a ceaseless battle of wits with the Reds.

He played the key role in setting up Taipeh's famous Fu Hsing Kang College (Political Staff College), an institution dedicated to the study of psychological warfare and so respected that officers from 27 Western states (including South Africa) have gone there to study this new science of "psy-war".

Free China is believed to be the only Western nation with a formal political warfare division in its Central Governemnt.

Yet even in Taipeh political warfare is still so little understood that most people seem to identify the department as some sort of organisation of "spooks" — secret agents.

Let's see what General Wang has to say about that.

First though, what manner of man is he? He was born in Kiangsi Province in Southern China on October 28, 1917, into a nation ripped and torn by revolution.

He reflects on that time: "I loved to study and lived for a long time just for the pursuit of knowledge. But another part of me could not bear the agonies of the Chinese people.

"I wanted to serve the country. Thereupon, I enlisted in the military."

However, he never led troops and never saw battle. What he did do was begin a lifelong study of the communist techniques of "ideological conquest" — direct attack upon the human mind, more commonly known today as "winning the hearts and minds of the masses."

Foreign visitors often express curiosity about psy-war. "I patiently explain," he says, "that political warfare is a necessity. Mere armed defence is no longer enough against the enemies of our values.

"The biggest military budget conceivable is inadequate without accompanying ideological effort.

"The final outcome of the present titanic struggle for world supremacy cannot and will not be decided by military action alone. To ignore that is to invite disaster."

What exactly is psy-war? "The scientific use of thought and philosophy on a battleground of intellect. The communists are experts at manipulation and controlling thought.

"By mounting a ceaseless campaign of slander against the target country, by shattering the enemy's political confidence, by weakening his will, confusing him, they defeat him at the root, destroy his survival virtue."

The answer? "Communists use political warfare: but they fear it, too."

Here he insists that the story of Vietnam should serve both as an example and a warning.

He went there many times for on-the-spot study of the coldly calculated, step-by-step internal destruction of South Vietnam, as it was slowly eaten away by Red experts in thought control and manipulation, aided by fellow travellers in the US itself.

"Southern Vietnam had the military support of the US, Canada, Thailand, the Philippines and South Korea. Militarily, it should not have fallen.

"The reason for its collapse was political warfare: the disuniting forces and political propaganda created and disseminated by the communists and their associates.

"Rifts resulted between Buddhists and Christians, students and government, and ultimately in policy between the US and South Vietnam."

To one familiar with the practice and techniques of psy-war, it was painfully evident what was happening. But when General Wang warned the Americans of the tactics being used, "no one believed me."

Here he comments: "Remembering Vietnam, I implore all freedom-loving countries to be vigilant, to strengthen their unity, to recognise the warfare being waged against them, to actively counteract the unseen communist threat.

"Only then can countries resist being literally splintered to death by this very experienced enemy of all freedom in the world."

How does he handle the situation in his own much-threatened nation? All soldiers, down to the lowest-level serviceman, have to undergo psy-war training.

"The enemy is immensely powerful, but he is not invincible. In a dangerous world, political warfare can provide us with a non-military weapon which we can use to prevent us ever having to use our military weapons.

"Above all, our people must be taught how to distinguish friend from foe, not to open the door for the robbers, as the Chinese saying goes."

Recent revolutions in communications technology, he says, have "revolutionised the arts of war. It is easier to forge effective ideological weapons against communism than it has ever been."

Many in South Africa, where the communists stand at our very door, understand General Wang's message. Certainly, the SADF knows what he is talking about. Far too many politicians do not. Since Info, propaganda has had a bad name in this country.

Says one domestic critic: "We do use propaganda methods, but on a limited scale and generally badly.

"Overall, our propaganda programme is deficient both in quality and quantity, underfunded, lacking in sophisticated technology. Repeatedly, the communist message goes forth without rebuttal."

Perhaps, if the West would listen to General Wang, people of future generations will ask: "What saved the world from communism?"

The answer could well be: Fu Hsing Kang College and its mastermind, General Wang.

CSO: 5100/5691

ATOMIC ENERGY OFFICIAL ON NONPROLIFERATION PACT

LD231022 Moscow TASS in English 0935 GMT 23 Jul 82

[Text] Moscow July 23 TASS -- "The 25 years of the International Atomic Energy Agency (IAEA) have shown that it has been fully up to the functions assigned to it. The task of making peaceful uses of atomic power, which was entrusted to it, is being successfully performed," Andronik Petrosyants, chairman of the USSR's State Committee for the Use of Atomic Energy, writes in the weekly NEW TIMES [NOVOYE VREMYA] today.

"The agency's extensive control system in the form of a package of rules and provisions concerning the use of all types of nuclear materials, the so-called IAEA safeguards system," the author says, "should make the governments and the public more confident that the development of the nuclear power industry does not lead to the proliferation of nuclear arms."

"A large number of states has arrived at the conclusion that the renunciation of nuclear arms cprresponds to the interests of their security, as a result of which as many as 118 countries have joined the non-proliferation treaty."

"At present," the article goes on, "the IAEA safegards over 98 percent of the nuclear reactors of all countries which do not possess nuclear arms, except four states. But it is precisely these four states, including Israel, that make the world community most concerned. Israel has not signed the non-proliferation treaty and has not accepted the IAEA's control and safeguards. The Israeli Government is flouting all international norms and principles with the direct backing of the United States."

Andronik Petrosyants expressed concern at the fact that the Israeli armed attack against an Iraqi nuclear research centre outside Baghdad, which is under the IAEA's control, could set an example for others. He writes: "This is why it is so important to ensure that all states will join the non-proliferation treaty and observe it."

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SWEDEN, DENMARK TO STUDY SAFETY OF SWEDISH NUCLEAR PLANT

Stockholm SVENSKA DAGBLADET in Swedish 16 Jun 82 p 6

[Article: "Barseback. Danish-Swedish Report"]

[Text] The Swedish government agrees to form a joint Swedish-Danish committee to report further on the risks of a serious accident at Barseback Nuclear Power Station.

This is what Labor Market and Energy Minister Ingemar Eliasson (People's Party) writes to the Danish Environmental Minister, Erik Holst, reports TT.

In the letter Eliasson proposes that the committee should first of all work on two problems: To throw light onto the probabilities for conceivable breakdowns at Barseback and various safety measures, and to study how the safety problems have been treated in other countries where nuclear power stations lie close to national borders or larger cities.

A Danish proposal says that the commission should work according to the Nordic Environmental Protection Convention from 1974. This means that the commission should have the right to make statements on problems related to conditions for activities harmful to the environment--if the activity may involve environmental risks in both countries.

The Swedish government now points out that Barseback 1 and 2 received their permits in 1970 and 1972 and that the Danish authorities already then received information and an opportunity to sneak up.

The Swedish government therefore believes that there is no reason for appointing a commission according to the Environmental Protection Convention from 1974.

8958
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BRIEFS

SPENT FUEL FROM SWEDEN TO FRANCE--This fall shipment of spent uranium from Sweden to the large reprocessing installation La Hague in France will start. Construction of a new unit at the installation owned by Cogema has just started, and it is at this unit that the Swedish nuclear fuel waste will be taken care of. The information became known when Cogema's customer association met in Stockholm with representatives for nuclear power companies in Japan, Germany, Switzerland, the Netherlands, Belgium and Sweden. For some time uncertainty prevailed about the future of nuclear power in France, but after a debate in the National Assembly, the program for the country was generally approved. Then the development started up again in La Hague. There is already an older reprocessing installation in operation, which takes care of 500 tons of fuel from light-water reactors and 4100 tons from gas-cooled reactors. [Text] [Stockholm DAGENS NYHETER in Swedish 17 Jun 82 p 18] 8958

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POLEMICS SURROUNDING NUCLEAR FUSION PROJECT 'IGNITOR'

Politics Versus Science

Rome LA REPUBBLICA in Italian 6 Jul 82 p 6

[Article by Carlo Bernardini, Felice Ippolito, and Gherardo Stoppini: "When Politics Fights with Science"]

[Text] The repeated and inaccurate disclosure of the size of Italy's economic deficit and its growth in the end relegates to second place the analysis of the quality rather than the quantity of this disaster. Still, it should be clear to everybody that the indication of the mere overall quantitative measure conceals and covers up more essential failures in government. It also seems obvious to us that the problems of quality cannot be taken under consideration in accordance with the order or sequence established by anonymous quantitative parameters but must instead be examined on the basis of their "germinal" capacity to produce future benefits (or damages). For example--and this is the case we want to talk about here--what we do or what we do not do in the field of scientific and technological research, no matter how modest, can have explosive or implosive consequences for the country's future.

The administration initiative in support of research should at the same time be cautious and determined. But the administration cannot "invent" research and therefore must concern itself with having efficient and competent persons in the commanding positions that control this sector. In other words, the administration must know how to choose, possibly outlining general objectives and waiting for the development of methods suitable for the attainment of those objectives. If, on the other hand, the criterion adopted is the criterion of considering the environment of research as a part of an electorate to be satisfied, then the results cannot be anything but occasional; we are naturally talking here about results of social significance, not about the consensus as such.

It seems to us that it is precisely this latter "electoral" criterion which has prevailed in Italy in recent years and that the special-interest method has broken all bounds also in this academic environment which, by virtue of its own cultural strength, could feel itself to be sufficiently authoritative to influence the problems of the quality of development. And there are signals here of a further deterioration of the situation which, since they are signals, must be picked up in the nascent state, when hopes of correction are not yet entirely dead.

One of these signals seems to us to be particularly indicative of this deterioration because it presents itself in a form which denotes the downfall of that residue of self-control which until a short time ago regulated the scientific community from the inside and that comes close to "disdain for institutions." We are talking here about what happened to the project for a prototype nuclear fusion plant called Ignitor. The project, whose scientific worth we are not questioning, sprang up in a climate of academic dyscarsy which certainly is nothing new but which, in the recent past, could be settled due to a certain degree of autonomy of this research environment from the political establishment. Those who advocated Ignitor however are discovering that it is possible to find political sponsors with whose help one can get to the final result without the usual examination processes. And they are pushing in that direction with an impressive press campaign which describes the marvels of this undertaking to unaware newspaper readers.

These somewhat pathetic forms of anticipatory triumphalism already constitute a significant change in the traditional scientific customs but they may be excused in terms of naiveness which is not a quality worthy of disdain, if they are not too openly aimed at grabbing peripheral scholarships. It takes at least 50 billion and it is not easy to get that kind of money by going through channels. We must realize that ENEL [National Committee for Nuclear Energy and Alternate Sources] (formerly the CNEN [National Nuclear Energy Commission]), with the approval of and the contribution of the European Community, set up a strictly similar machine at the Frascati Laboratories and has technologies and competence that were well consolidated throughout lengthy experience. The risk feared by the proponents of Ignitor is that they would have to arrive at a compromise if only because of the obvious convenience of using already existing facilities.

And that is where the subsidiary scholarship goes out the window: The Region of Piedmont, which has been interested in the project for more than a year. On top of that we can add, for what it is worth, the CNR [National Research Council], as well as Fiat (at least on the basis of an intention). Only the almighty knows what the region has to do with a program of national if not European importance.

One thing that is certain is that the undertaking makes it possible to avoid rather very detailed coordination with other similar activities. As for the rest, the ENEA itself had not yet as a matter of fact suppressed the project by financing it carefully only in the preliminary phase but the Ignitor Group obviously was not thinking of using this provisional institutional coverage to prepare itself for a serious scientific clash but rather to furnish information that would justify the request for other financing sources and for other agencies. These are justifying elements of information which today are fluttering in sound Christian-Democratic hands in the European Parliament, in the Region of Lombardy as well as in the Region of Piedmont, as well the Ministry of Scientific Research; anybody who would suggest a comparative study by a technical agency would, to say the least, be considered a saboteur.

How will all this end? Italy, a country with colossal deficits and with drastic spending cuts, will very probably order the go-ahead for three fusion programs without coordinating them: the FTU [Frascati Torus Upgrade] machine in Frascati, Ignitor, and the CNR program of Padua (very much more modest than the other two, to tell the truth). They give the reader an idea; the investments can be compared with those which the universities as a whole get in just one year (and which have been cut from 170 down to 90 billion for this year). Much taxpayer's money will therefore be wasted because a serious problem will not have been resolved. That is not the only example we could give. But we consider it advisable to report this in some detail because this is one of those cases in which serious and worthwhile projects in the end benefit from political corruption and that leads to some rather sad predictions.

Ignitor Experiment Opposed

Rome L'ESPRESSO in Italian 25 Jul 82 pp 119-120

[Article by Giovanni Maria Pace: "Ignitor against Everybody"]

> [Text] This is the name of new machine to produce energy. But the experiment is being opposed.

Rome. "This experiment must not be conducted!" Three outstanding members of the Roman scientific community--Carlo Bernardini, Felice Ippolito, and Gherardo Stoppini--sounded off on 6 July in LA REPUBBLICA. "We have everything in order to attempt it," replied the physicists at Turin and Milan, beyond the Gothic Line. The experiment involves nuclear fusion, the promising source of energy, and has been proposed by an Italian physicist who is doing research in America; his name is Bruno Coppi. Although Professor Coppi's name does not appear in the accusing article, it is he, his credibility as a scientist, and his capacity for prediction which are challenged. Is Coppi a precursor or a visionary? Will his machine work or will this not be a waste of 30 billion which it cost? In a field as new as plasma physics--the stellar state of matter which is recreated in the fusion reactor--there are only few experts. Even smaller is the number of those who can express judgments. "I cannot figure out why men such as Stoppini, Bernardini, and Ippolito are included among them," said Einstein Prize winner Tullio Regge who came out in support of Coppi. Against the background of the Ignitor case--this is the name of the machine to be built--we see the usual rivalry between North and South, between Roman centralism and local autonomy, between the various schools and groups of professors and their pertinent political "sponsors." Rarely in the august halls of sciences have so many excited voices been heard and it is rather strange that this dispute should center around a machine in which, for the first time, the fire of nuclear fusion, an inexhaustible, economical, and clean fire is to be lit. If it is lucky, Ignitor will deserve a place in history along with the Fermi pile. Why all this fuss? Here is how it all began.

About half a score of years ago, Professor Coppi launched a program for nuclear fusion at the MIT which included the Alcator machine; this machine differs somewhat from the prevailing line, the line of the big and expensive tokamak machines on which the Americans and Russians have concentrated their efforts. Alcator is a small, compact machine with which the MIT group achieved the world record in "confinement," an important stage in the race toward controlled fusion. But at the very moment it produced that result, Alcator reached its limit. It was necessary to go further, to build another machine in which one could check the "priming" of the deuterium-tritium mixture. This is the magic moment at which the plasma burns by virtue of its own energy, without any outside contribution. The new machine is the Ignitor. Coppi is preparing the blueprints for it with a view to Italy, also because in the United States, the golden land of technology, there is no facility suitable for this undertaking at this time.

From 1971 onward, Coppi also worked on the program for another machine for the Frascati Center (the Frascati Torus or FT). The new Ignitor project then received with favor but became involved in the slow and laborious routine of public research; months passed; news came from Moscow to the effect that they were also thinking of a similar prototype. Rome began to stir and the Region of Lombardy and the Region of Piedmont also became interested in the initiative. Both of them have facilities suitable for this experiment: Saluggia or the Euratom Center at Ispra which is chronically underused but which has the necessary electric power. During a solemn meeting in October 1981, the Region of Piedmont announced the start of the initiative in which various universities, the CNR and the ENEA (the former CNEN)--which is financing a project feasibility study--would be cooperating.

But signs of ill humor came from Frascati. The group that is working there on the FT (the creature of Coppi, even though people prefer to overlook that) want to put up a new machine, the FTU (Frascati Torus Upgrade) which should facilitate further progress, although not final progress, on the way toward fusion. What need is there for the Ignitor?--say the Roman physicists. From Padua there were complaints from another group working on a similar experiment although much more modest. In the meantime, the ENEA was caught up in the storm of doubt and President Colombo decided to subject Ignitor to a commision of experts from Euratom whose response is expected by the end of 1982. Professor Sergio Fubini and Giovanni Ferrero, the Piedmont advisor for culture, had already sent a circular letter to the world's major universities with this question: What do you think of Bruno Coppi as a scientist? The answers are rather flattering. Rosenbluth from the University of Texas, Dawson from the University of Los Angeles, Weisskopf from Cambridge, Mazzucato from Princeton, Chuyanov from Moscow, and Satoshi Hito from the University of Tokyo sang the praises of the Italian physicist.

Along with the wave of agreement there were also voices of criticism, such as those brought out in the article in LA REPUBBLICA. What in substance do Bernardini and the others say? Above all that Ignitor is springing up beyond almost any planning, so to speak, "as a form of disdain of institutions"; second, that its promoters are trying to avoid the normal processes of verification" thanks to the support of "political sponsors" (that might be the support of Christian Democrats); finally, that the Region of Piedmont, in adopting Ignitor, would be getting into things that are none of its business.

The physicists in Turin counter, saying that technical conditions for this experiment exist only in the North. "It is impossible to enlarge the machine at Frascati, as Bernardini suggested," said Professor Fubini, "because at that facility you cannot handle tritium for safety reasons. Besides, Ignitor is among the alternate machines which the European Community itself recommends for development along with the line of the big tokamak." At headquarters of the Region of Piedmont, it is said that about half a score of Italian Universities are interested in Professor Coppi's experiment and there is no reason why a local agency should not partly finance a scientific undertaking (the other money would have to come from Euratom, from the CNR, from the ENEA, and from Fiat). After all, did not the city of Hamburg build Desy, the big atomic center, in order then to turn it over to the community of researchers?

Ignitor remains a bet. Will Professor Coppi's small machine be able to trigger the first deuterium-tritium reaction? Not even its inventor is sure of the result: "We are like sailors looking for some sign of land," said Coppi. Along the frontiers of knowledge, where Ignitor is, there are no a-priori verifiable equations, there are no technologies that can be checked out in advance, there are no reliable models. But it is believed in many scientific circles that the stakes are worth the effort. The final word will come from the Euratom commission chaired by John Adams, a famous technologist. Until that time, the bitter debate on Ignitor seems to be made more bitter by jealousies and parochialisms rather than by strong reasons of scientific policy.

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SWEDEN

CENTER PARTIES OPPOSE NUCLEAR PROLIFERATION

PM131111 Stockholm SVENSKA DAGBLADET in Swedish 11 Jul 82 p 6

[TIDNINGARNAS TELEGRAMBYRA dispatch]

[Text] Pajala -- the centrist movement in the Nordic countries should intensify their cooperation to bring about better guarantees against the spread of nuclear arms," Swedish Industry Minister Nils G. Asling (Center Party) said on Saturday [10 July] when he opened the 1982 Green Scandinavia [Greena Norden] meeting of the Swedish, Finnish and Norwegian center parties.

"The risk that enriched plutonium produced from peaceful nuclear power station waste could fall into the hands of nuclear arms manufacturers should be a devastating argument against enrichment for all those who take an interest in disarmament question. In this light it is remarkable that the Swedish Social Democratic Party, despite the growing numbers of reports of the risks, has moved over to an increasingly positive attitude," Asling said.

"Support should be given to enable the serious peace movement to put pressure on the nuclear powers to bring about real disarmament. Nordic cooperation is a good example of the fact that freer relations between states make a contribution to peace, security and freedom for individuals.

"The Falldin governments have made contributions to the special UN disarmament conferences, through the factual material they have presented and the arguments against rearmament in the light of the enormous danger to the environment a nuclear war would present and the consequences such a war would have for underprivileged parts of the world.

"Center parties must continue to make active contributions to disarmament work and, most of all, contribute to the removal of the nuclear threat," Asling said.

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BRIEFS

SPENT FUEL FROM SWEDEN TO FRANCE--Ringhals 3 after test operation. Worse damage than expected. The steam generator at Ringhals 3 does not hold even for limited operation. This is clear after 1500 hours of test operation caused more wear damage than expected. The leakage in Ringhals 3's steam generator was discovered in October 1981. In order to obtain a technical background, the State Power Board requested permission to run the installations on test and at a low power level in order to see how the damage would develop. "The results show an alarmingly high wear," says Lars Nordstrom in the State Nuclear Power Inspection. "We had believed that we should be able to run for a fairly long period of time at reduced power. Now we find out differently. But is not impossible that there may be continued test operation." The Swedish nuclear power stations were shut down quickly nine times during the first quarter of this year. The most serious disturbance was the fire in unit 1 in the Oskarshamn station in February. This is clear from the quarterly report by the Nuclear Power Inspection (SKI). During the period only eight out of nine units have been in operation. The ninth, Ringhals 3, has been out of operation since October 1981 due to steam generator damage. The Swedish nuclear power units have been shut down for a total of 2959 hours during the quarter due to disturbances. Only Oskarshamn 2 has operated continuously without shutdown. Svensk Karnbransleforsorjning AB (SKBF) has during the period requested permission to build an installation for final storage of waste from all nuclear power stations in Sweden. The installation was to be built at Forsmark's nuclear power station. Waste from the central storage for spent nuclear fuel, which is now being built in Simpevarp, should finally be stored here. The State Power Board, the owners of Ringhals 4, would during the period have startup permission for this. Since unit 4 is virtually identical to Ringhals 3, where problems have shown up with the steam generator, Ringhals 4 was not allowed to start as usual, except with reduced power. [Text] [Stockholm DAGENS NYHETER in Swedish 17 Jun 82 p 18] 8958

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